

Allowable Subject Matter

The Examiner is thanked for the kind allowance of claims 1-21, and claim 23-26, 28-31 and 33-36 if rewritten in independent form including all of the limitation of the base claim and any intervening claims. Applicants acknowledge the Examiner's statement of reasons for allowance as set forth in the Office Action. However, Applicants point out that the reasons for allowability of the above referenced claims are not limited to the reasons for allowance as set forth in the Office Action, and that additional reasons for allowability may exist, each of which may be independently sufficient to establish the patentability of one or more pending claims.

Applicants respectfully reserve the right to introduce, articulate, or otherwise comment on any such additional reasons for allowance as may be appropriate in any future proceedings concerning the claimed invention.

The 35 U.S.C. § 103 Rejection

Claims 22, 27, and 32 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Fujii (U.S. Pat. No. 5,349,309). This rejection is respectfully traversed.

According to M.P.E.P. § 2143,

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art, not in the applicant's disclosure.

The circuit of the present invention defined in claim 22 includes a capacitance controller that *alternately* switches a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array based on the frequency control signal (emphasis added). Claims 27 and 32 also recite the same distinctive feature of alternately switching switched capacitors in two capacitor arrays.

The Examiner correctly acknowledges that Fujii does not teach a controller that alternately switches a switched-capacitor in a first capacitor array and a switched-capacitor in a second capacitor array. However, the Examiner alleges, in the Office Action, as follows:

It would have been obvious to one of ordinary skill in the art, that once the input 1 changes that the adder 6 (controller) output a new signal (IN0 through IN[5]), which would require switching of the weighted capacitors in both capacitor arrays. For example, when the frequency of the phase locked loop changes, the adder (controller) would alternately switches between the switches 36 and 42 being closed and remaining switches being opened or switches 37 and 43 being closed and the remaining switches being opened in order to select a desired weighted capacitance. ... Therefore, when the frequency of PLL changes, the adder (controller) alternately switches the switched capacitors of the first and second capacitor array. The motivation or suggest would be to allow for control of the oscillation frequency.

However, in the claimed invention, a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array are alternately switched, i.e., the two switched capacitors are not switched at the same time or simultaneously. As the Examiner correctly observes, however, in Fujii (FIG 6 thereof), the switch 36 (in the first capacitor array) and the switch 42 (in the second capacitor array) are *simultaneously*

closed (or opened) in a first instance. Similarly, the switch 37 (in the first capacitor array) and the switch 43 (in the second capacitor array) are *simultaneously* closed (or opened) in a second instance. That is, at any instance in Fujii, a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array are switched simultaneously, not alternately as claimed in claim 22 (and also in claims 27 and 32).

If Fujii's system were to be modified to *alternately* switch a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array, as the Examiner alleges, when a switched-capacitor in the first capacitor array, for example, the capacitor 49 (switch 36), is switched in a first instance, no switched-capacitor in the second capacitor array would be switched at the same time. Then, in the next instance, a switched-capacitor, for example, the capacitor 56 (switch 42) in the second capacitor array would be switched, while all switched-capacitors in the first capacitor array would remain unchanged. Such alternate switching is not obvious from Fujii, since in Fujii's system as shown in FIG. 6 thereof, a switched-capacitor in the first capacitor array and the corresponding switched-capacitor in the second capacitor array are connected to the same signal line and therefore must be switched together.

In addition, Fujii does not provide any motivation or suggestion to modify its "simultaneous switching" to "alternate switching" in order to control the oscillation frequency for the following reason: As shown in FIG. 6 of Fujii, a pair of switched capacitors of the same capacitance (one in the first capacitor array, and the other in the second capacitor array) are controlled by the same signal. For example, signal "IN0"

controls the both switches 36 and 42, which changes the capacitance by the amount of C for each capacitor array. Similarly, signal "IN1" controls the both switches 37 and 43, which changes the capacitance by the amount of 2C for each capacitor array. Since the capacitor values (C, 2C, 4C, 8C, 16C, and 32C) represent the corresponding to bit values (2^0 , 2^1 , 2^2 , 2^3 , 2^4 , and 2^5) of the 6-bit signal (IN0 through IN5), whenever a new 6-bit signal is given, the pair of capacitors must be switched simultaneously in order to achieve the correct capacitance value in accordance with the 6-bit signal. Otherwise, the capacitance value would not follow the control signal and the oscillator frequency would not be properly controlled. Thus, it is necessary for Fujii to *simultaneously* switch the pair of capacitors in order to operate as intended, and therefore any deviation from that simultaneous switching could render Fujii's system unworkable.

Accordingly, Fujii neither teaches nor suggests alternately switching a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array, as claimed in claim 22 (and also in claims 27 and 32). It is respectfully requested that the rejection of claims based on Fujii be withdrawn.

In view of the foregoing, it is respectfully asserted that all of the claims are now in condition for allowance.

Request for Allowance

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Respectfully submitted,
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Limited Recognition under 37 CFR §10.9(b)

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